MIDDLEWARE TECHNOLOGIES

(Professional Elective-IV) / (Common for CSE,IT)

COURSE CODE: 15CT1129

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COURSE OUTCOMES:

At the end of the course the student shall be able to

CO1: Define object middleware
CO2: Discuss the use of web services
CO3: Describe technical issues in middleware
CO4: Discover the use of middleware in building distributed technologies
CO5: Associate security issues with distributed applications

UNIT-I **(8-10 Lectures)**

INTRODUCTION: Moving to e-business, what is IT architecture? Why is this different from what we did before? Rewrite or evolve?, Who develops the architecture?, Early days, Preliminaries, Remote procedure calls, Remote database access, Distributed transaction processing, Message queuing, Message queuing versus distributed transaction processing, what happened to all this technology

UNIT-II **(8-10 Lectures)**

OBJECTS, COMPONENTS, AND THE WEB: Using object middleware, Transactional component middleware, COM, EJB, Final comments on TCM, Internet Applications. WEB SERVICES: Service concepts, Web services, and Using Web services: A pragmatic approach.

UNIT-III **(8-10 Lectures)**

A TECHNICAL SUMMARY OF MIDDLEWARE: Middleware elements, The communications link, The middleware protocol, The programmatic interface, Data presentation, Server control, Naming and directory services, Security, System management, Comments on Web services, Vendor architectures, Vendor platform architectures, Vendor-distributed architectures, Using vendor architectures, Positioning, Strawman for user target architecture, Marketing, Implicit architectures, Middleware interoperability.

UNIT-IV **(8-10 Lectures)**

USING MIDDLEWARE TO BUILD DISTRIBUTED APPLICATIONS: What is middleware for? Support for business processes, Information retrieval, Collaboration, Tiers, The presentation tier, The processing tier, The data tier, Services versus tiers, Architectural choices, Middleware bus architectures, Hub architectures, Web services architectures, Loosely coupled versus tightly coupled.

UNIT-V **(8-10 Lectures)**

SECURITY: What security is needed, Traditional distributed system security, Web services security, Architecture and security.

APPLICATION DESIGN AND IT'S ARCHITECTURE : :Problems with today's design approaches, Design up front or as needed?, The role of business rules, Existing systems, Reuse, Silo and monolithic development, The role of architecture, Levels of design, Reconciling design approaches.

TEXT BOOKS:

1. Chris Britton and Peter Eye, *"IT Architectures and Middleware: Strategies for Building Large, Integrated Systems"*, 2nd Edition, Pearson Education, 2004.

REFERENCES:

1. Qusay H. Mahmoud, *"Middleware for Communications"*,1st Edition, John Wiley and Sons,2004.
2. Michah Lerner, *"Middleware Networks: Concept, Design and Deployment of Internet Infrastructure"*, 1st Edition, Kluwer Academic Publishers, 2000.

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